

# Student Profile: Science Inquiry Learning Grades PreK-4

**Student:** \_\_\_\_\_

**DOB:** \_\_\_\_\_

**Date of Entry:** \_\_\_\_\_ **Re-entry:** \_\_\_\_\_

Year	Grade	Teacher	Support Service Provider	Case Manager

**The Student Profile for Science Inquiry Learning** provides a guide for instructional planning, progress monitoring, and documentation of essential learning of science inquiry skills and concepts within and across grades PreK–4. The science skills and concepts listed have been integrated with consideration of developing literacy and numeracy skills at these grade levels. At the end of each school year, samples of student work could accompany this record when the Profile is passed on to the next year’s teacher.

- Grade level teams can begin using the Profile by listing the major units of study for Earth & Space Science, Physical Science, and Life Science on page 3 under the columns at the far right. Sample units for grade 2 have been filled in to illustrate this first step. This helps to see the balance of units across science domains.
- Next, *list the assessment tools* (by name or description) *under column E* (page 3) that are used for each unit of study. Teachers/teams must determine which assessments to include - performance tasks, science notebook entries, etc. In the grade 2 example, the “Ice Melt Task” is a performance task used in the physical science unit, Solids, Liquids, & Gases. This investigation assesses use of prior knowledge or evidence to explain predictions, which corresponds to A-10. (A-Formulating Questions, skill #10 for grade 2). Other skills assessed with this task might also include other grade 2 skills: A-11 (identify variables), C-13 (draw key features), C-14 (explain similarities/differences), and D-12 (organize data). (See highlighting on pages 2-3 of Profile for skills assessed with the grade 2 Ice Melt Task.)

**DIRECTIONS for Documenting Progress:**

**I** in the box indicates the skill/concept has been introduced, but the student has not yet demonstrated conceptual understanding or consistently applied the skill *in the context of an investigation*. It may be necessary to: scaffold instruction; re-teach the concept using another approach or another context/investigation; or re-assess acquisition of skills/concepts at earlier levels if not yet mastered. Administering formative assessments prior to conducting extended investigations is highly recommended to guide instructional planning and appropriate timing of the summative assessments.

**X** in the box indicates the student has met expectations for this grade level, meaning that there is *sufficient evidence* (assessment data from multiple formats – teacher observations, formative assessments, performance tasks, etc.) to support this conclusion.

When including a sample of student work (e.g., for parent conferences), label the student work with the inquiry indicator letter (“A” - Formulating Questions, etc.) and include the corresponding skills/concepts assessed with that assessment task. Also list the name of the assessment tool used and be sure the student work is dated.

Science Inquiry	A Is the student developing an awareness and curiosity about objects, organisms, and events in the environment?	B Is the student developing the ability to plan and analyze simple investigations to test predictions/answer questions?	C To what extent is the student developing skills of observing, measuring, recording, organizing, and summarizing data?
Grade Levels	<i>Formulating Questions &amp; Hypothesizing</i>	<i>Planning &amp; Critiquing Investigations</i>	<i>Conducting Investigations</i>
<b>Grades PreK-K</b>	<input type="checkbox"/> 1. Sustains curiosity and focus during teacher-guided explorations <input type="checkbox"/> 2. Sustains curiosity and focus during open-ended & self-guided explorations <input type="checkbox"/> 3. Answers questions about things observed, manipulated, or predicted <input type="checkbox"/> 4. Uses picture cues, prior knowledge, and observations to make predictions <input type="checkbox"/> 5. Formulates questions about things observed or manipulated when cued (e.g., what do you wonder?) or on own	<input type="checkbox"/> 1. Selects materials and objects for open-ended explorations <input type="checkbox"/> 2. Works with others to generate simple testable questions (Does it sink) <input type="checkbox"/> 3. Works with others to plan how to answer simple testable questions: What tools/materials to use How to “collect” data Where/how to record data Safety rules	<input type="checkbox"/> 1. Uses multiple senses to collect data/ make observations <i>with teacher guidance</i> <input type="checkbox"/> 2. Uses simple tools (e.g., magnifier, scale) to gather data <i>with teacher guidance</i> <input type="checkbox"/> 3. Uses nonstandard units, numbers, words, drawings to record observations <input type="checkbox"/> 4. Identifies differences in observable characteristics of materials or events <input type="checkbox"/> 5. Identifies similarities in observable characteristics of materials or events <input type="checkbox"/> 6. Drawings show some details (size, color)
<b>Grade 1</b>	<input type="checkbox"/> 6. Asks questions about things that can be observed or manipulated (how far...) <input type="checkbox"/> 7. Connects prior knowledge/evidence to observations and predictions <input type="checkbox"/> 8. Identifies variable to change/test (e.g., what if ...more or less water?)	<input type="checkbox"/> 4. Works with others to generate simple testable questions <input type="checkbox"/> 5. Identifies potential data to collect and tools & materials needed <input type="checkbox"/> 6. Works with others to develop major steps to follow to collect & record data	<input type="checkbox"/> 7. Follows steps of a plan <i>with guidance</i> <input type="checkbox"/> 8. Uses tools & senses to make observations <input type="checkbox"/> 9. Drawings show detail of ‘target’ features (size, color, shape, numbers, proportions) <input type="checkbox"/> 10. Records similarities & differences in teacher-provided tables/charts/templates
<b>Grade 2</b>	<input type="checkbox"/> 9. Poses observational questions (e.g., compare differences in speed) <input type="checkbox"/> 10. Uses prior knowledge/evidence to explain logical predictions <input type="checkbox"/> 11. Identifies variable to change/test <input type="checkbox"/> 12. Generates new inquiry questions	<input type="checkbox"/> 7. Works with others to write a plan to answer observational questions <input type="checkbox"/> 8. Identifies data to collect and tools and materials needed <input type="checkbox"/> 9. Explains safety rules and (steps) procedure for data collection	<input type="checkbox"/> 11. Follows a plan to conduct investigations <input type="checkbox"/> 12. Uses tools & senses to collect data <input type="checkbox"/> 13. Drawings show detail & completeness (relative proportions, key features, labels) <input type="checkbox"/> 14. Explains similarities & differences <input type="checkbox"/> 15. Organizes, labels, & titles graphs/charts
<b>Grade 3</b>	<input type="checkbox"/> 13. Poses cause-effect questions <input type="checkbox"/> 14. Uses observations and evidence to explain predictions (e.g., data patterns, cause-effect observations) <input type="checkbox"/> 15. Describes variables that affect systems using “if-then” statements	<input type="checkbox"/> 10. Develops a sequential plan to test a prediction/answer a question <input type="checkbox"/> 11. Identifies tools, materials, and equipment needed and data to collect <input type="checkbox"/> 12. Explains how to ensure a “fair test” (e.g., variables to control, methods) & identifies potential design flaws	<input type="checkbox"/> 16. Records & labels data (e.g., units of measure, labels & titles, trials, order) <input type="checkbox"/> 17. Drawings are detailed, complete, keyed <input type="checkbox"/> 18. Select appropriate representations to display data graph, table) and observations <input type="checkbox"/> 19. Follows and explains procedures <input type="checkbox"/> 20. Interprets data: describes results, makes connections to prediction
<b>Grade 4</b>	<input type="checkbox"/> 16. Connects observations to a question <input type="checkbox"/> 17. Connects observations to prediction <input type="checkbox"/> 18. Makes reasonable predictions based on available evidence <input type="checkbox"/> 19. Supports prediction or question with an explanation <input type="checkbox"/> 20. Analyzes scientific data about systems to generate questions or predictions (showing cause-effect relationships)	<input type="checkbox"/> 13. Identifies types of evidence that answer a question or tests a prediction <input type="checkbox"/> 14. Develops a step-by-step plan to answer a question/ test a prediction <input type="checkbox"/> 15. Explains why a procedure is/ is not a “fair test” (e.g., control of variables, multiple trials, data collection method) <input type="checkbox"/> 16. Explains appropriateness of use of tools, materials, and procedures <input type="checkbox"/> 17. Determines how to collect and record data (e.g., use of table, drawing) <input type="checkbox"/> 18. Redesigns investigation based on design flaws or designs new investigation using new evidence	<input type="checkbox"/> 21. Uses tools correctly; collects accurate data; measures precisely <input type="checkbox"/> 22. Records and labels <i>all</i> relevant data (e.g., observations, measurement units) <input type="checkbox"/> 23. Uses appropriate representations and accurately organizes/displays data (scale for graph, labels table) and observations, (e.g., keys, scale, & details in drawings) <input type="checkbox"/> 24. Follows & can explain procedures (e.g., multiple trials, control variables) <input type="checkbox"/> 25. Interprets <i>all</i> data: summarizes results using key ideas; identifies patterns; connects data to prediction (support/refute); shows relationships between variables

<b>D</b> Is the student able to use information and/or data to communicate and support ideas and draw conclusions?	<b>E</b> List common assessment tasks, specific in-depth learning experiences (e.g., projects), and/or inquiry investigations used to assess science inquiry.	<i>Earth &amp; Space Science Concepts</i>	<i>Physical Science Concepts</i>	<i>Life Science Concepts</i>
<i>Developing &amp; Evaluating Explanations</i>	<i>List Common Assessments &amp; (codes for) Related Skills</i>	<i>Units of Study (&amp; assessment)</i>	<i>Units of Study (&amp; assessment)</i>	<i>Units of Study (&amp; assessment)</i>
<input type="checkbox"/> 1. Nonverbally conveys ideas investigated (drawing, movement, demonstrate with objects) <input type="checkbox"/> 2. Verbally conveys ideas investigated <input type="checkbox"/> 3. Uses some letters or words to label drawings <input type="checkbox"/> 4. Organizes data (e.g., makes pictograph, colors in bar graph, fills in chart, sorts objects) <input type="checkbox"/> 5. Explains observations using props (e.g., table, drawing, graph, objects) <input type="checkbox"/> 6. Sorts/classifies objects by observable attribute (e.g., color, size, shape, etc.)				
<input type="checkbox"/> 7. Writes a coherent message (1-2 sentences) to describe observations (I saw...; I found out...) <input type="checkbox"/> 8. Organizes data (e.g., pictograph, diagram, bar graph, chart) <input type="checkbox"/> 9. Sorts/classifies objects and explains groupings <input type="checkbox"/> 10. Describes results (in table, diagram, drawing)				
<input type="checkbox"/> 11. Describes or writes about a sequence of observed events using some details/evidence <input type="checkbox"/> 12. Organizes data (e.g., pictograph, diagram, bar graph, chart, model) and identifies patterns <input type="checkbox"/> 13. Sorts/classifies objects and materials and justifies groupings (e.g., with evidence, definitions)	<b>Ice melt Task assesses:  A-10, A-11, C-13, C-13, D-12</b>	<b>Objects in the Sky:</b> Observe things in the sky; describe movements and locations (e.g., sun, stars, clouds)	<b>Solids, Liquids, &amp; Gases:</b> Observe the effects of changing temperatures <b>(Ice Melt Task)</b>	<b>Life Cycles:</b> Investigate how life cycles of plants and animals are alike and different
<input type="checkbox"/> 14. Uses main points, details, and evidence to summarize results & conclusions <input type="checkbox"/> 15. Uses labeled drawings and data tables to support interpretations (e.g., patterns, trends) <input type="checkbox"/> 16. Discusses possible errors in data <input type="checkbox"/> 17. Relates data to prediction/question <input type="checkbox"/> 18. Proposes new questions based on results				
<input type="checkbox"/> 19. Identifies data relevant to task/question <input type="checkbox"/> 20. Classifies data into meaningful categories <input type="checkbox"/> 21. Compares own data to other sources (e.g., scientific data given, science concepts, proposed predictions, seemingly inaccurate results) <input type="checkbox"/> 22. Interprets/analyzes data: Uses evidence to explain interpretations of data trends, justify conclusions, evaluate significance of data <input type="checkbox"/> 23. Connects task/model to real world example <input type="checkbox"/> 24. Identifies possible experimental error (e.g., data collection method, insufficient /wrong data) <input type="checkbox"/> 25. Proposes new questions, new predictions, or modified procedures based on results				